

10/549242
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AMENDMENTS TO THE SPECIFICATION

On Page 1, please add the following paragraph after the title, and before the heading "*TECHNICAL FIELD*":

CROSS-REFERENCE TO RELATED APPLICATION

This application is based upon and claims the benefit of priority from Japanese Patent Application No. 2003-196301, filed July 14, 2003, Application No. 2003-341315, filed September 30, 2003, Application No. 2003-341316, filed September 30, 2003, Application No. 2004-084302, filed March 23, 2004, and Application No. 2004-146345, filed May 17, 2004, the entire contents of which are incorporated herein by reference.

Please replace the Paragraph beginning on Line 13 of Page 1 and after the heading "*BACKGROUND ART*" with the following paragraph rewritten in amendment format:

Conventional wireless packet communication apparatuses are adapted to proactively determine only one wireless channel to be used and detect prior to the transmission of a wireless packet whether or not the wireless channel is idle (or performs carrier sense), then transmitting one wireless packet only when the wireless channel is idle. Such transmission control by carrier sense allowed one wireless channel to be shared among a plurality of stations (hereinafter, STAs) on a time division basis ((1) ~~IEEE 802.11 "MAC and PHY Specification for Metropolitan Area Network", IEEE 802.11, 1998, International Standard ISO/IEC 8802-11~~ ANSI/IEEE Std. 802.11, 1999 edition, Information technology – Telecommunications and information exchange between systems – Local and metropolitan area networks – Specific requirements – Part 11: Wireless LAN Medium Access Control (MAC)

and Physical Layer (PHY) specifications; (2) "Low-powered Data Communication System/Broadband Mobile Access Communication System (CSMA) Standard", ~~ARIB~~ ~~SDT-T71~~ ARIB STD-T71 version 1.0, Association of Radio Industries and Businesses, settled in 2000).

In the section titled "*DISCLOSURE OF THE INVENTION*", please replace the following paragraphs as indicated below.

Please replace the Paragraph beginning on Line 22 of Page 4 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 1,~~ According to a first aspect of the invention, a transmit-side STA transmits a wireless packet using a wireless channel which has been determined to be idle by both a physical carrier sense for determining based on received power whether the wireless channel is busy or idle and a virtual carrier sense for determining the wireless channel to be busy during set transmission inhibition time. At this time, the transmit-side STA sets transmission inhibition time used for the virtual carrier sense to a paired wireless channel which is affected by leakage from a transmitting wireless channel.

Please replace the Paragraph beginning on Line 9 of Page 5 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 2,~~ According to a second aspect of the invention, a transmit-side STA transmits a plurality of wireless packets simultaneously using multiple wireless channels which have been determined to be idle by both a physical carrier sense for determining based on received power

whether the wireless channels are busy or idle and a virtual carrier sense for determining the wireless channels to be busy during set transmission inhibition time. At this time, the transmit-side STA sets time ($T_{max} + T_s$) obtained by adding the predetermined time T_s to the T_{max} as transmission inhibition time used for the virtual carrier sense to a paired wireless channel other than a wireless channel which requires the longest transmission time T_{max} among wireless channels used for simultaneous transmission.

Please replace the Paragraph beginning on Line 19 of Page 5 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 3,~~ According to a third aspect of the invention, in the transmit-side STA according to the invention of claim 2, if an existing set transmission inhibition time for the virtual carrier sense is smaller than time ($T_{max} + T_s$), then the time ($T_{max} + T_s$) is set to the paired wireless channel as a new transmission inhibition time.

Please replace the Paragraph beginning on Line 23 of Page 5 with the following paragraph rewritten in amendment format:

~~According to the invention of claims 2 and 3,~~ According to a second and third aspect of the invention, even when due to the effect of leakage from a wireless channel having the longest transmission time among wireless channels transmitting simultaneously, another wireless channel cannot successfully receive, it is possible to set transmission inhibition time corresponding to the longest transmission time to another wireless channel. This in turn allows the virtual carrier sense to be properly performed.

Please replace the Paragraph beginning on Line 4 of Page 6 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 4,~~ According to a forth aspect of the invention, a transmit-side STA predetermines a combination of wireless channels which have an effect of leakage of transmitted power on each other among multiple wireless channels, and sets time ($T_i + T_s$) obtained by adding the predetermined time T_s to the time T_i as transmission inhibition time used for the virtual carrier sense to a paired wireless channel other than a wireless channel which requires the longest transmission time T_i among each combination of wireless channels.

Please replace the Paragraph beginning on Line 10 of Page 6 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 5,~~ According to a fifth aspect of the invention, in the transmit-side STA according to the invention of claim 4, if an existing set transmission inhibition time for the virtual carrier sense is smaller than ($T_i + T_s$), then the transmit-side STA sets ($T_i + T_s$) to the paired wireless channel as a new transmission inhibition time.

Please replace the Paragraph beginning on Line 14 of Page 6 with the following paragraph rewritten in amendment format:

~~According to the invention of claims 4 and 5,~~ According to a forth and fifth aspect of the invention, a transmit-side STA predetermines a combination of wireless channels which have an effect of leakage of transmitted power on each other among multiple wireless channels. Even when due to the effect of leakage from a wireless channel having the longest transmission time in each combination of wireless

channels, another wireless channel cannot successfully receive, it is possible to set transmission inhibition time corresponding to the longest transmission time to another wireless channel. This in turn allows the virtual carrier sense to be properly performed.

Please replace the Paragraph beginning on Line 21 of Page 6 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 6,~~ According to a sixth aspect of the invention, the transmit-side STA ~~according to the invention of claims 1 to 5~~ according to the first to fifth aspects of the invention detects received power caused by leakage from a transmitting wireless channel in the paired wireless channel, and sets transmission inhibition time to a paired wireless channel having the received power greater than or equal to a predetermined threshold value.

Please replace the Paragraph beginning on Line 6 of Page 7 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 7,~~ According to a seventh aspect of the invention, the transmit-side STA ~~according to the invention of claims 1 to 6~~ according to the first to sixth aspects of the invention, detects an error in a received signal in the paired wireless channel, and set the transmission inhibition time to a paired wireless channel having an error detected.

Please replace the Paragraph beginning on Line 15 of Page 7 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 8, According to an eighth aspect of the invention,~~ the transmit-side STA ~~according to the invention of claims 1 to 7 according to the first to seventh aspects of the invention~~ detects an error in a wireless packet received upon having received the wireless packet over the paired wireless channel. In this case, if a wireless channel having successfully received a wireless packet directed to the own STA has set transmission inhibition time, the transmit-side STA cancels the transmission inhibition time. Additionally, if occupied time is set in a header of the received wireless packet, the transmit-side STA the transmission inhibition time in accordance with new set transmission inhibition time.

Please replace the Paragraph beginning on Line 3 of Page 8 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 9, According to a ninth aspect of the invention,~~ in the transmit-side STA ~~according to the invention of claims 1 to 8, according to the first to eighth aspects of the invention,~~ if there is a wireless channel having the set transmission inhibition time when transmission data is generated, the transmit-side STA waits until the transmission inhibition time elapses and then transmits a wireless packet using the wireless channel determined to be idle.

Please replace the Paragraph beginning on Line 15 of Page 8 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 10, According to a tenth aspect of the invention,~~ in the transmit-side STA ~~according to the invention of claims 1 to 8, according to the first to eighth aspect of the invention,~~ when transmission data is generated, if the longest transmission inhibition time of wireless channels having set

transmission inhibition time is smaller than a predetermined threshold value, the transmit-side STA waits until the transmission inhibition time elapses and then transmits a wireless packet using the wireless channel determined to be idle. Alternatively, if the longest transmission inhibition time is greater than or equal to the predetermined threshold value, the transmit-side STA transmits a wireless packet, without waiting until the transmission inhibition time elapses, using the wireless channel determined to be idle.

Please replace the Paragraph beginning on Line 10 of Page 9 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 11,~~ According to an eleventh aspect of the invention, in the transmit-side STA ~~according to the invention of claims 1 to 8,~~ according to the first to eighth aspect of the invention, if there is a wireless channel having the set transmission inhibition time when transmission data is generated, the transmit-side STA transmits a wireless packet, without waiting with a predetermined probability until the transmission inhibition time elapses, using the wireless channel determined to be idle.

Please replace the Paragraph beginning on Line 24 of Page 9 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 12,~~ According to a twelfth aspect of the invention, in the transmit-side STA ~~according to the invention of claims 1 to 8,~~ according to the first to eighth aspects of the invention, when transmission data is generated, the transmit-side STA waits until all wireless channels are determined to

be idle by the physical carrier sense and the virtual carrier sense, and then transmits a wireless packet using the wireless channel determined to be idle.

Please replace the Paragraph beginning on Line 11 of Page 10 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 13,~~ According to a thirteenth aspect of the invention, in the transmit-side STA ~~according to the invention of claims 1 to 8,~~ according to the first to eighth aspect of the invention, when transmission data is generated, the transmit-side STA waits until all wireless channels are determined to be idle by the physical carrier sense and the virtual carrier sense, and then transmits wireless packets using the wireless channels that have been determined to be idle. Alternatively, if the longest transmission inhibition time of wireless channels having set transmission inhibition time is greater than or equal to a predetermined threshold value, the transmit-side STA transmits wireless packets, without waiting until the transmission inhibition time elapses, using the wireless channels that have been determined to be idle.

Please replace the Paragraph beginning on Line 5 of Page 11 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 14,~~ according to a fourteenth aspect of the invention, in the transmit-side STA ~~according to the invention of claim 10 or 13,~~ according to the tenth or twelfth aspect of the invention, when there is a wireless channel having the set transmission inhibition time: if the wireless channel has set transmission inhibition time smaller than a predetermined threshold value, the transmit-side STA waits until the transmission inhibition time elapses and then

transmits a wireless packet using the wireless channel determined to be idle. Alternatively, if no wireless channel has set transmission inhibition time smaller than the predetermined threshold value, the transmit-side STA transmits a wireless packet, without waiting until the transmission inhibition time elapses, using the wireless channel determined to be idle.

Please replace the Paragraph beginning on Line 14 of Page 11 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 15,~~ According to a fifteenth aspect of the invention, in the transmit-side STA ~~according to the invention of claim 14,~~ according to the fourteenth aspect of the invention, if there is a wireless channel having the set transmission inhibition time and the wireless channel has set transmission inhibition time smaller than a predetermined threshold value, the transmit-side STA waits until the transmission inhibition time elapses and then returns to determine whether there is a wireless channel having the set transmission inhibition time.

Please replace the Paragraph beginning on Line 20 of Page 11 with the following paragraph rewritten in amendment format:

~~According to the invention of claims 14 and 15,~~ According to a fourteenth and fifteenth aspect of the invention, if none of wireless channels having set transmission inhibition time has set transmission inhibition time smaller than a predetermined threshold value, the transmit-side STA transmits a plurality of wireless packets simultaneously, without waiting until the transmission inhibition time elapses, using idle wireless channels. On the other hand, if there is a wireless channel having set transmission inhibition time smaller than the predetermined threshold value, the

transmit-side STA waits until the transmission inhibition time elapses and then transmits a plurality of wireless packets using idle wireless channels. It is thus possible to set an upper wait time limit as well as to efficiently transmit a wireless packet while making effective use of the wait time.

Please replace the Paragraph beginning on Line 5 of Page 12 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 16,~~ According to a sixteenth aspect of the invention, in the transmit-side STA ~~according to the invention of claims 1 to 8,~~ according to the first to eighth aspects of the invention, when transmission data is generated, the transmit-side STA waits or does not wait with a predetermined probability until all wireless channels are determined to be idle by the physical carrier sense and the virtual carrier sense, and then transmits a wireless packet using the wireless channel determined to be idle.

Please replace the Paragraph beginning on Line 18 of Page 12 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 17, in the invention of claims 1 to 8,~~ According to a seventeenth aspect of the invention, in the first to eighth aspects of the invention, if a received wireless packet has set transmission inhibition time, the receive-side STA sets the transmission inhibition time to a receiving wireless channel; if a wireless packet directed to the own STA has been successfully received, the receive-side STA transmits an acknowledgment packet (hereinafter, ACK packet) including the set transmission inhibition time in the paired wireless channel to the transmit-side STA. When the transmit-side STA receives a

corresponding ACK packet within a predetermined period of time after having transmitted the wireless packet, the transmit-side STA updates the set transmission inhibition time for the paired wireless channel to transmission inhibition time of a paired wireless channel included in the ACK packet.

Please replace the Paragraph beginning on Line 10 of Page 13 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 18,~~ According to an eighteenth aspect of the invention, sub-channels are provided to be multiplexed into one wireless channel between a transmit-side STA and one or more receive-side STAs. The transmit-side STA assigns a plurality of wireless packets to a plurality of sub-channels respectively for simultaneous transmission, in which each of the sub-channels has been determined to be idle by both a physical carrier sense for determining based on received power whether the sub-channel is busy or idle and a virtual carrier sense for determining the sub-channel to be busy during set transmission inhibition time. At this time, the transmit-side STA sets time ($T_{\max} + T_s$) obtained by adding the predetermined time T_s to the T_{\max} as transmission inhibition time used for the virtual carrier sense to sub-channels other than a sub-channel which requires the longest transmission time T_{\max} among sub-channels used for simultaneous transmission.

Please replace the Paragraph beginning on Line 21 of Page 13 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 19,~~ According to a nineteenth aspect of the invention, in the transmit-side STA ~~according to the invention of claim 18,~~ according

to the eighteenth aspect of the invention, if an existing set transmission inhibition time for the virtual carrier sense is smaller than ($T_{\max} + T_s$), then the transmit-side STA sets ($T_{\max} + T_s$) to the sub-channel as a new transmission inhibition time.

Please replace the Paragraph beginning on Line 22 of Page 13 with the following paragraph rewritten in amendment format:

~~According to the invention according to claims 18 and 19,~~ According to an eighteenth and nineteenth aspect of the invention, even when a sub-channel not in transmission or reception cannot receive, it is possible to provide set transmission inhibition time corresponding to the longest transmission/reception time to the sub-channel, thereby allowing the virtual carrier sense to be properly performed.

Please replace the Paragraph beginning on Line 4 of Page 14 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 20,~~ According to a twentieth aspect of the invention, a transmit-side STA transmits a wireless packet using a wireless channel which has been determined to be idle by both a physical carrier sense unit which determines based on received power whether the wireless channel is busy or idle and a virtual carrier sense unit which determines the wireless channel to be busy during set transmission inhibition time. At this time, the virtual carrier sense unit sets transmission inhibition time to a paired wireless channel which is affected by leakage from a transmitting wireless channel.

Please replace the Paragraph beginning on Line 16 of Page 14 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 21,~~ According to a twenty-first aspect of the invention, a transmit-side STA transmits a plurality of wireless packets simultaneously using multiple wireless channels which have been determined to be idle by both a physical carrier sense unit which determines based on received power whether the wireless channels are busy or idle and a virtual carrier sense unit which makes the wireless channels busy during set transmission inhibition time. At this time, the virtual carrier sense unit sets time ($T_{max} + T_s$) obtained by adding the predetermined time T_s to the T_{max} as the transmission inhibition time to a paired wireless channel other than a wireless channel which requires the longest transmission time T_{max} among wireless channels used for simultaneous transmission.

Please replace the Paragraph beginning on Line 25 of Page 14 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 22,~~ According to a twenty-second aspect of the invention, if an existing set transmission inhibition time is smaller than ($T_{max} + T_s$), then the virtual carrier sense unit of the transmit-side STA according to the invention of claim 21 sets ($T_{max} + T_s$) to the paired wireless channel as a new transmission inhibition time.

Please replace the Paragraph beginning on Line 4 of Page 15 with the following paragraph rewritten in amendment format:

~~According to the invention of claims 21 and 22,~~ According to a twenty-first and twenty-second aspect of the invention, even when due to the effect of leakage from a wireless channel having the longest transmission time among wireless channels

transmitting simultaneously, another wireless channel cannot successfully receive, it is possible to provide set transmission inhibition time corresponding to the longest transmission time to the another wireless channel. This in turn allows the virtual carrier sense to be properly performed.

Please replace the Paragraph beginning on Line 10 of Page 15 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 23,~~ According to a twenty-third aspect of the invention, a virtual carrier sense unit of a transmit-side STA predetermines a combination of wireless channels which have an effect of leakage of transmitted power on each other among multiple wireless channels, and sets time ($T_i + T_s$) obtained by adding the predetermined time T_s to the T_i as the transmission inhibition time used for the virtual carrier sense to a paired wireless channel other than a wireless channel which requires the longest transmission time T_i among each combination of wireless channels.

Please replace the Paragraph beginning on Line 17 of Page 15 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 24,~~ According to a twenty-fourth aspect of the invention, if an existing set transmission inhibition time is smaller than ($T_i + T_s$), then the virtual carrier sense unit of the transmit-side STA according to the invention of claim 23 sets ($T_i + T_s$) to the paired wireless channel as a new transmission inhibition time.

Please replace the Paragraph beginning on Line 21 of Page 15 with the following paragraph rewritten in amendment format:

~~According to the invention of claims 423 and 24,~~ According to a twenty-third and twenty-fourth aspect of the invention, a combination of wireless channels is predetermined which have an effect of leakage of transmitted power on each other among multiple wireless channels. Even when due to the effect of leakage from a wireless channel having the longest transmission time in each combination of wireless channels, another wireless channel cannot successfully receive, it is possible to provide set transmission inhibition time corresponding to the longest transmission time to the another wireless channel. This in turn allows the virtual carrier sense to be properly performed.

Please replace the Paragraph beginning on Line 3 of Page 16 with the following paragraph rewritten in amendment format:

~~According to the invention of claims 25,~~ According to a twenty-fifth aspect of the invention, in the transmit-side STA ~~according to the invention of claims 20 to 24,~~ according to the twentieth to twenty-fourth aspect of the invention, the transmit-side STA includes a unit which detects received power caused by leakage from a transmitting wireless channel in the paired wireless channel, and the virtual carrier sense unit provides the set transmission inhibition time to a paired wireless channel having the received power greater than or equal to a predetermined threshold value.

Please replace the Paragraph beginning on Line 14 of Page 16 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 26,~~ According to a twenty-sixth aspect of the invention, the transmit-side STA ~~according to the invention of claims 20 to 25 according to the twentieth to twenty-fifth aspect of the invention~~ includes a unit which detects an error in a received signal in the paired wireless channel, and the virtual carrier sense unit sets the transmission inhibition time to a paired wireless channel having an error detected.

Please replace the Paragraph beginning on Line 23 of Page 16 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 27,~~ According to a twenty-seventh aspect of the invention, the transmit-side STA ~~according to the invention of claims 20 to 26 according to the twentieth to twenty-sixth aspect of the invention,~~ includes a unit which detects an error in a received wireless packet when having received the wireless packet over the paired wireless channel. If a wireless channel having successfully received a wireless packet directed to the own STA has the set transmission inhibition time, the virtual carrier sense unit cancels the transmission inhibition time. Additionally, if a header of the received wireless packet has a setting of occupied time, the virtual carrier sense unit sets correspondingly new set transmission inhibition time.

Please replace the Paragraph beginning on Line 12 of Page 17 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 28,~~ According to a twenty-eighth aspect of the invention, in the transmit-side STA ~~according to the invention of claims 20 to 27,~~ according to the twentieth to twenty-seventh aspect of the invention, if there is a

wireless channel having the set transmission inhibition time when transmission data is generated, the virtual carrier sense unit waits until the transmission inhibition time elapses and then transmits a wireless packet using the wireless channel determined to be idle.

Please replace the Paragraph beginning on Line 24 of Page 17 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 29,~~ According to a twenty-ninth aspect of the invention, in the transmit-side STA ~~according to the invention of claims 20 to 27,~~ according to the twentieth to twenty-seventh aspect of the invention, when transmission data is generated, if the longest transmission inhibition time of wireless channels having set transmission inhibition time is smaller than a predetermined threshold value, the virtual carrier sense unit waits until the transmission inhibition time elapses and then transmits a wireless packet using the wireless channel determined to be idle. Alternatively, if the longest transmission inhibition time is greater than or equal to the predetermined threshold value, the virtual carrier sense unit transmits a wireless packet, without waiting until the transmission inhibition time elapses, using the wireless channel determined to be idle.

Please replace the Paragraph beginning on Line 19 of Page 18 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 30,~~ According to a thirtieth aspect of the invention, in the transmit-side STA ~~according to the invention of claims 20 to 27,~~ according to the twentieth to twenty-seventh aspect of the invention, if there is a wireless channel having the set transmission inhibition time when transmission data

is generated, the virtual carrier sense unit transmits a wireless packet, without waiting with a predetermined probability until the transmission inhibition time elapses, using the wireless channel determined to be idle.

Please replace the Paragraph beginning on Line 8 of Page 19 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 31,~~ According to a thirty-first aspect of the invention, in the transmit-side STA ~~according to the invention of claims 20 to 27,~~ according to the twentieth to twenty-seventh aspect of the invention, when transmission data is generated, the physical carrier sense unit and the virtual carrier sense unit wait until all wireless channels are determined to be idle, and then transmit a wireless packet using the wireless channel determined to be idle.

Please replace the Paragraph beginning on Line 19 of Page 19 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 32,~~ According to a thirty-second aspect of the invention, in the transmit-side STA ~~according to the invention of claims 20 to 27,~~ according to the twentieth to twenty-seventh aspect of the invention, when transmission data is generated, the physical carrier sense unit and the virtual carrier sense unit wait until all wireless channels are determined to be idle, and then transmit a wireless packet using the wireless channel determined to be idle. Alternatively, if the longest transmission inhibition time of wireless channels having set transmission inhibition time is greater than or equal to a predetermined threshold value, the physical carrier sense unit and the virtual carrier sense unit transmit a

wireless packet, without waiting until the transmission inhibition time elapses, using the wireless channel determined to be idle.

Please replace the Paragraph beginning on Line 14 of Page 20 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 33,~~ According to a thirty-third aspect of the invention, in the transmit-side STA ~~according to the invention of claim 29 or 32,~~ according to the twenty-ninth or thirty-second aspect of the invention, when there is a wireless channel having the set transmission inhibition time: if the wireless channel has set transmission inhibition time smaller than a predetermined threshold value, the virtual carrier sense unit waits until the transmission inhibition time elapses and then transmits a wireless packet using the wireless channel determined to be idle. Alternatively, if no wireless channel has set transmission inhibition time smaller than the predetermined threshold value, the virtual carrier sense unit transmits a wireless packet, without waiting until the transmission inhibition time elapses, using the wireless channel determined to be idle.

Please replace the Paragraph beginning on Line 23 of Page 20 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 34,~~ According to a thirty-fourth aspect of the invention, in the transmit-side STA ~~according to the invention of claim 33,~~ according to the thirty-third aspect of the invention, if there is a wireless channel having the set transmission inhibition time and the wireless channel has set transmission inhibition time smaller than a predetermined threshold value, the virtual carrier sense unit waits until the transmission inhibition time elapses and then returns to determine

whether there is a wireless channel having the set transmission inhibition time or whether all wireless channels are idle.

Please replace the Paragraph beginning on Line 4 of Page 21 with the following paragraph rewritten in amendment format:

~~According to the invention of claims 33 and 34,~~ According to a thirty-third and thirty-fourth aspect of the invention, if none of wireless channels having set transmission inhibition time has set transmission inhibition time smaller than a predetermined threshold value, the virtual carrier sense unit transmits a plurality of wireless packets simultaneously, without waiting until the transmission inhibition time elapses, using idle wireless channels. On the other hand, if there is a wireless channel having set transmission inhibition time smaller than the predetermined threshold value, the virtual carrier sense unit waits until the transmission inhibition time elapses and then transmits a plurality of wireless packets using idle wireless channels. It is thus possible to set an upper wait time limit as well as to efficiently transmit a wireless packet while making effective use of the wait time.

Please replace the Paragraph beginning on Line 14 of Page 21 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 35,~~ According to a thirty-fifth aspect of the invention, in the transmit-side STA ~~according to the invention of claims 20 to 27,~~ according to the twentieth to twenty-seventh aspect of the invention, the physical carrier sense unit and the virtual carrier sense unit wait or do not wait with a predetermined probability until all wireless channels are determined to be idle, and then transmit a wireless packet using the wireless channel determined to be idle.

Please replace the Paragraph beginning on Line 3 of Page 22 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 36, in the invention of claims 20 to 27,~~
According to a thirty-sixth aspect of the invention, in the twentieth to twenty-seventh aspect of the invention, the receive-side STA includes a unit which sets transmission inhibition time to a receiving wireless channel if a received wireless packet has the set transmission inhibition time, and which transmits to the transmit-side STA an ACK packet including the set transmission inhibition time provided to the paired wireless channel if a wireless packet directed to the own STA has been successfully received.

Please replace the Paragraph beginning on Line 20 of Page 22 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 37,~~ According to a thirty-seventh aspect of the invention, included are one transceiver which multiplexes a plurality of sub-channels into one wireless channel for transmission and reception; a physical carrier sense unit which determines based on received power whether each of the ~~sub-carriers~~ sub-channels is busy or idle; and a virtual carrier sense unit which determines each of the ~~sub-carriers~~ sub-channels to be busy during set transmission inhibition time. The transceiver assigns a plurality of wireless packets to a plurality of sub-channels respectively for simultaneous transmission and reception, the sub-channels having been determined to be idle by both the physical carrier sense and the virtual carrier sense. At this time, the virtual carrier sense unit sets time ($T_{max} + T_s$) obtained by adding the predetermined time T_s to the T_{max} as transmission

inhibition time to sub-channels other than a sub-channel which requires the longest transmission time T_{\max} among sub-channels used for simultaneous transmission and reception.

Please replace the Paragraph beginning on Line 7 of Page 23 with the following paragraph rewritten in amendment format:

~~According to the invention of claim 38,~~ According to a thirty-eighth aspect of the invention, if an existing set transmission inhibition time for a virtual carrier sense is smaller than $(T_{\max} + T_s)$, then the virtual carrier sense unit of the transmit-side STA ~~according to the invention of claim 37~~ according to the thirty-seventh aspect of the invention, sets $(T_{\max} + T_s)$ to the sub-channel as a new transmission inhibition time.

Please replace the Paragraph beginning on Line 11 of Page 23 with the following paragraph rewritten in amendment format:

~~According to the invention of claims 37 and 38,~~ According to a thirty-seventh and thirty-eighth aspect of the invention, even when a sub-channel not in transmission or reception cannot receive, it is possible to set transmission inhibition time corresponding to the longest transmission/reception time to the sub-channel, thereby allowing the virtual carrier sense to be properly performed.

On page 23, please add the following paragraph beginning on line 17 and after the heading *"BRIEF DESCRIPTION OF THE DRAWINGS"*:

The nature, principle, and utility of the invention will become more apparent from the following detailed description when read in conjunction with the

accompanying drawings in which like parts are designated by identical reference numbers, in which:

In the section "*BEST MODE FOR CARRYING OUT THE INVENTION*", please replace the Paragraph beginning on Line 12 of Page 36 with the following paragraph rewritten in amendment format:

Fig. 9 shows a flowchart according to the fifth embodiment of the present invention. Fig. 10 shows an example of operation according to the ~~fourth~~ fifth embodiment of the present invention. Here, wireless channels #1, #2, #3, #4, and #5 are prepared. It is assumed that at timing t1, the wireless channel #2 and #5 are busy due to a virtual carrier sense by the NAV defined by a wireless packet received before then. It is also assumed that the wireless channels #1 to #5 may be suffered from leakage only between the adjacent channels.

Please replace the Paragraph beginning on Line 17 of Page 73 with the following paragraph rewritten in amendment format:

Additionally, the carrier sense block 17 sets the NAV to the occupied time described in the packet supplied from the frame selection block 16. Then, the carrier sense block 17 determines whether the corresponding wireless channel is idle or busy according to the NAV value and the ~~PSSI~~ RSSI signal supplied from the receiver 14. Carrier sense results cs1 to cs3 delivered from the carrier sense block 17 corresponding to each wireless channel are supplied to the analyzer of channels' occupation status 24. Based on the carrier sense result corresponding to each wireless channel, the analyzer of channels' occupation status 24 manages the idle state of each wireless channel, and informs the data frame management block 23 of

information such as the idle wireless channel and the number of idle channels ("a" in Fig. 45).

Please replace the Paragraph beginning on Line 19 of Page 82 with the following paragraph rewritten in amendment format:

For example, suppose that all the three sub-channels #1, #2, and #3 are idle; the data frame management block 23 selects all the three sub-channels #1, #2, and #3; and three data packets are simultaneously supplied from the data packet generating block 22. In this case, these three data packets should be correlated with the sub-channels #1, #2, and #3 in orderly sequence, respectively. The data packet correlated with each sub-channel is supplied to the modulator 11 via the multiplexer 18. Upon reception of the data packet from the packet switching block ~~[[24]]~~ 25, the modulator 11 performs the predetermined modulation processing on the data packet for output to the transmitter 12. The transmitter 12 performs the transmission processing, which includes DA conversion, frequency translation, filtering, and power amplification, on the modulated data packet supplied from the modulator 11, and then transmits the resulting data packet as a wireless packet from the antenna 13.

On Page 83, please add the following paragraph beginning on Line 18 and before the heading "*INDUSTRIAL APPLICABILITY*":

The invention is not limited to the above embodiments and various modifications may be made without departing from the spirit and scope of the invention. Any improvement may be made in part or all of the components.